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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/759,031	01/20/2004	Iris Pecker	27179	7304

7590 01/03/2007

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EXAMINER	
DEBERRY, REGINA M	
ART UNIT	**PAPER NUMBER**
1647	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/03/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/759,031	PECKER, IRIS	
	Examiner	Art Unit	
	Regina M. DeBerry	1647	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 October 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21* is/are pending in the application.

4a) Of the above claim(s) *14-21* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-13* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *20 January 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *1/06*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Status of Application, Amendments and/or Claims

Applicant's election of Group I (claims 1-13) in the reply filed on 10 October 2006 is acknowledged. Because Applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)). Claims 14-21 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected Group, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 10 October 2006. Claims 1-13 are under examination.

Information Disclosure Statement

The information disclosure statement(s)(IDS) filed 19 January 2006 was received and complies with the provisions of 37 CFR §§1.97 and 1.98. It has been placed in the application file and the information referred to therein has been considered as to the merits.

Specification

The disclosure is objected to because of the following informalities: It contains an embedded hyperlink and/or other form of browser-executable code (page 8, line 20 and page 26, line 4). The specification should be reviewed for improper recitation of hyperlinks. All such recitations should be deleted or amended such that the hyperlinks and/or other form of browser-executable code are rendered inactive. See MPEP § 608.01. Appropriate correction is required.

Claim Objections

Claim 10 is objected to because of the following informalities: The word "and" should be inserted before "Rous sarcoma virus promoter". Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1, 2, 5 and 6 are indefinite because of the recitation, "as set forth by SEQ ID NO" (claims 1, 5 and 6) or "of SEQ ID NO:" (claim 2). It is not clear if the instant claims encompass open (comprising) or closed (consisting) language.

Claims 2, 5 and 6 are indefinite because it is not clear what the chimeric polynucleotide encompasses. The instant claims are drawn to the chimeric polynucleotide of claim 1, wherein said nucleic acid sequence includes SEQ ID NO:10, SEQ ID NO:11 or SEQ ID NO:12, respectively. The instant claims are unclear because they fail to specifically recite that SEQ ID NOS: 10, 11, and/or 12 comprise the coding sequences for erythropoietin.

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 3, 4, 6, 12 and 13 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The invention is drawn to an expression system capable of producing high levels of EPO. The specification teaches a chimeric polynucleotide comprising a nucleic sequence encoding an EPO polypeptide attached to a 5'-UTR sequence as set forth by SEQ ID NO:6 or 7 (page 2, lines 29-34). The specification teaches SEQ ID NO:10 as human EPO polypeptide and SEQ ID NO:11 as human EPO cDNA (page 7, lines 4-13).

The instant claims are not supported by an enabling disclosure because the specification fails to teach that any nucleotide can be attached at the 3' end (applies to claims 3 and 4). The specification also fails to teach that any eukaryotic cell culture can be genetically modified to produce at least 150 international units of erythropoietin (EPO) per milliliter medium per 48 hours (applies to claims 12 and 13).

The claims are not supported by an enabling disclosure because the specification fails to teach the truncated 3'-UTR sequence employed in the vector to produce at least 150 international units of EPO per milliliter medium per 48 hours (claims 12 and 13). The specification teaches that a recombinant EPO transfected with a 5'-UTR sequence and a truncated 3'-UTR region produced high levels of EPO in CHO

cells (page 9, line 29-page 10, line 2; Example 2 and Table 2, pages 28-29). The specification teaches the 5'-UTR region as SEQ ID NO:6 and SEQ ID NO:7 (page 26). The specification states that the 3'-UTR sequence is the 3'-UTR of the polynucleotide encoding EPO. **The instant specification employed a specific 5'-UTR and a 3'-UTR sequences in the EPO construct, but failed to disclose the specific 3'-UTR sequence employed in the construct.**

Lastly, claim 6 is drawn to the sequence set forth by SEQ ID NO:12. The specification teaches SEQ ID NO:12 as an EPO genomic fragment (page 7, lines 8-13). The polynucleotides are useful in that they encode an EPO protein with a biological activity. However, the specification does not teach the coding and non-coding regions in the EPO genomic fragment (SEQ ID NO:12). Thus, there is no assurance that once the EPO DNA genomic fragment is expressed downstream of the 5'UTR region, the EPO protein will have the desirable properties of the invention. It is in no way predictable that the randomly selected genomic fragment in the disclosed sequence would afford an EPO protein having activity comparable to the one disclosed. Certain positions in the sequence are critical to the protein's structure/function relationship, e.g. such as various sites or regions directly involved in binding, activity and in providing the correct three-dimensional spatial orientation of binding and active sites. These regions can tolerate only relatively conservative substitutions or no substitutions (see Wells, 1990, Biochemistry 29:8509-8517). The specification does not teach how to use a non-functioning EPO protein.

Due to the large quantity of experimentation necessary to make a chimeric polynucleotide wherein the chimeric polynucleotide further includes at least 10 and no more than 15 unknown non-translatable nucleic acids attached to the 3' end of said nucleic acid sequence, the large quantity of experimentation necessary to demonstrate that any eukaryotic cell culture can be modified to produce at least 150 international units of erythropoietin per milliliter medium per 48 hours and screen same for activity, the lack of direction/guidance presented in the specification regarding same, the lack of direction/guidance presented in the specification regarding how to use non-functioning EPO proteins, the absence of working examples directed to same, the complex nature of the invention, the state of the prior art which establishes the unpredictability of the effects of mutation on protein structure and function, and the breadth of the claims which fail to recite any structural or functional limitations regarding the 3'-UTR region, genetically modified eukaryotic cultures producing EPO and EPO genomic fragments, undue experimentation would be required of the skilled artisan to make and/or use the claimed invention.

Claims 3 and 4 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The instant claims are directed to at least 10 and no more than 15 non-translatable nucleic acids attached to a 3' end of a nucleic acid sequence. The claims are drawn to a genus of polynucleotides that are defined only by sequence length. To provide adequate written description and evidence of possession of a claimed genus, the specification must provide sufficient distinguishing identifying characteristics of the genus. The factors to be considered include disclosure of a complete or partial structure, physical and/or chemical properties, functional characteristics, structure/function correlation, methods of making the claimed product, or any combination thereof.

In the instant case, the only factor present in the claim is the recitation of virtually any random sequence as long as it has a stretch of at least 10 and more than 15 consecutive non-translatable nucleotides. The specification does not provide any guidance as to which nucleotides should be used that are functionally and structurally critical to the construct. In absence of sufficient recitation of distinguishing identifying characteristics, the specification does not provide adequate written description of the claimed genus.

Vas-Cath Inc. v. Mahurkar, 19USPQ2d 1111, clearly states that "applicant must convey with reasonable clarity to those skilled in the art that, as of the filing date sought, he or she was in possession of the invention. The invention is, for purposes of the 'written description' inquiry, whatever is now claimed." (See page 1117.) The specification does not "clearly allow persons of ordinary skill in the art to recognize that [he or she] invented what is claimed." (See Vas-Cath at page 1116).

The skilled artisan cannot envision the detailed chemical structure of the encompassed polynucleotides, and therefore conception is not achieved until reduction to practice has occurred, regardless of the complexity or simplicity of the method of isolation. Adequate written description requires more than a mere statement that it is part of the invention and reference to a potential method of isolating it. The compound itself is required. See Fiers v. Revel, 25 USPQ2d 1601 at 1606 (CAFC 1993) and Amgen Inc. v. Chugai Pharmaceutical Co. Ltd., 18 USPQ2d 1016.

One cannot describe what one has not conceived. See Fiddes v. Baird, 30 USPQ2d 1481 at 1483. In Fiddes, claims directed to mammalian FGF's were found to be unpatentable due to lack of written description for that broad class. The specification provided only the bovine sequence.

Due to the breadth of the claim genus and lack of the definitive structural or functional features of the claimed genus, one skilled in the art would not recognize from the disclosure that the Applicant was in possession of the claimed genus. Applicant is reminded that Vas-Cath makes clear that the written description provision of 35 U.S.C. §112 is severable from its enablement provision (see page 1115).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 12 and 13 are rejected under 35 U.S.C. 102(b) as being anticipated by Lin *et al.,* U.S. Patent No. 4,703,008. Lin *et al.* teach a eukaryotic cell culture (of mammalian origin) genetically modified to produce at least 150 international units of erythropoietin per milliliter medium per 48 hours (column 11, lines 9-16 and column 27, line 47-column 28, line 68).

Conclusion

No claims are allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Regina M. DeBerry whose telephone number is (571) 272-0882. The examiner can normally be reached on 9:00 a.m.-6:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brenda G. Brumback can be reached on (571) 272-0961. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

RMD
12/14/06

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